

WHAT IS CLAIMED IS:

1. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a high degree of vacuum; and

a detection step of detecting an ejection failure of a nozzle in the vacuum atmosphere before starting the ejection step.

2. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a pressure of 10^{-3} torr or less; and

a detection step of detecting an ejection failure of a nozzle in the vacuum atmosphere before starting the ejection step.

3. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a pressure of 10^{-5} torr or less; and

a detection step of detecting an ejection failure of a nozzle in the vacuum atmosphere before starting the ejection step.

4. The material arranging method according to Claim 1, wherein the detection step includes an action of ejecting the material to a preliminary-ejecting area other than the predetermined area and detecting the ejection failure of a nozzle on the basis of the ejecting result.

5. The material arranging method according to Claim 1, wherein the detection step includes an action of providing a preliminary member in the predetermined area, ejecting the material to a preliminary-ejecting area provided in the preliminary member, and detecting the ejection failure of a nozzle on the basis of the ejection result.

6. A material arranging method according to Claim 4, wherein the detection of the ejection failure of a nozzle is performed by detecting the light-reflectivity of the material ejected to the preliminary-ejecting area.

7. The material arranging method according to Claim 4, wherein the detection of the ejection failure of the at least one nozzle is performed by detecting the light-transmissivity of the material ejected to the preliminary-ejecting area.

8. The material arranging method according to Claim 1, wherein the detection step is performed at the time of changing of the material in the ejection step.

9. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a high degree of vacuum; and

a preliminary ejection step of preliminarily ejecting the material from a nozzle toward an area on the base other than the predetermined area before starting the ejection step.

10. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a pressure of 10^{-3} torr or less; and

a preliminary ejection step of preliminarily ejecting the material from a nozzle toward an area on the base other than the predetermined area before starting the ejection step.

11. A material arranging method of arranging a material on a base, the method comprising:

an ejection step of ejecting the material from at least one nozzle toward a predetermined area of the base, which is provided in a vacuum atmosphere that is adjusted to a pressure of 10^{-5} torr or less; and

a preliminary ejection step of preliminarily ejecting the material from a nozzle toward an area on the base other than the predetermined area, before starting the ejection step.

12. A material arranging method according to Claim 9, wherein the preliminary ejection step performs the preliminary ejection of the nozzle in a process immediately previous to the ejection step.

13. A material arranging method according to Claim 9, wherein the preliminary ejection step is performed at the time of changing the material in the ejection step.

14. The material arranging method according to Claim 9, further comprising a positional correction step of detecting an arranged position of the material arranged through

the preliminary ejection and a target position to arrange the material through the preliminary ejection right after the preliminary ejection step, and performing a positional correction of a nozzle when a positional deviation occurs between the arranged position and the target position.

15. A method of manufacturing an electronic device, wherein at least some elements constituting the electronic device are formed using the material arranging method according to Claim 1.

16. The method of manufacturing an electronic device according to Claim 15, wherein a material for forming at least one of a conductive layer, a semiconductor layer, and an insulating layer constituting a transistor or a memory element is arranged as the material, and then the conductive layer, the semiconductor layer, or the insulating layer is formed.

17. The method of manufacturing an electronic device according to Claim 15, wherein patterns for separating wires from each other are formed in advance on the base, the forming material is arranged in the patterns, and then the conductive layer is formed.

18. A method of manufacturing an electro-optical device, wherein at least some elements constituting the electro-optical device are formed using the material arranging method according to Claim 1.

19. The method of manufacturing an electro-optical device according to Claim 18, wherein a material for forming at least one of an electron-transporting layer, a hole-transporting layer, a light-emitting layer, and electrodes constituting an organic electroluminescent element is arranged as the material, and then the electron-transporting layer, the hole-transporting layer, the light-emitting layer, or the electrodes is formed.

20. The method of manufacturing an electro-optical device according to Claim 18, wherein partitions for separating pixels from each other are formed in advance on the base, the forming material is arranged in the partitions, and then the electron-transporting layer, the hole-transporting layer, or the light-emitting layer is formed.

21. A film-forming apparatus comprising:
a processing chamber;
a pressure control system for controlling the pressure in the processing chamber to a low pressure;
at least one nozzle provided in the processing chamber and connected to a material supply source, for arranging a material on a member provided in the processing chamber;
a stage provided in the processing chamber for holding the member;

moving means for relatively moving the position of the nozzle or the stage;
and

inspecting means for inspecting the material arranged on the member.

22. A film-forming apparatus comprising:

a processing chamber;

a pressure control system for controlling the pressure in the processing chamber to a low pressure;

a head having a plurality of nozzles provided in the processing chamber and connected to a material supply source, for arranging a material on a member provided in the processing chamber;

a stage provided in the processing chamber for holding the member;

moving means for relatively moving the position of the nozzles or the stage;
and

inspecting means for inspecting the material arranged on the member.

23. The film-forming apparatus according to Claim 21, wherein the member is a base having a predetermined area in which a film of the material is formed.

24. The film-forming apparatus according to Claim 21, wherein the member is a preliminary member having a preliminary-ejecting area.

25. The film-forming apparatus according to Claim 21, wherein the nozzles further comprise a preliminary nozzle to be used in place of a nozzle having an ejection failure, when the ejection failure occurs in one of the nozzles.

26. The film-forming apparatus according to Claim 21, wherein the inspecting means comprises detecting means for detecting an ejection failure of the nozzles on the basis of an ejecting result of the material.

27. The film-forming apparatus according to Claim 21, wherein the inspecting means further comprises position correcting means for detecting an arranged position of the material and a target position to arrange the material and performing a positional correction of the nozzles when a positional deviation occurs between the arranged position and the target position.

28. An electronic device manufactured using the film-forming apparatus according to Claim 21.

29. An electro-optical device manufactured using the film-forming apparatus according to Claim 21.

30. An electronic apparatus comprising the electro-optical device according to Claim 29 as a display means.